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The KLM 2M-14C is a circular polarized antenna ideally suited for satellite and terrestrial communications. The characteristic pattern of the 14C is not half vertical, half horizontal, but equal in all planes within 3 dB. Circular wavefronts will exhibit a "left-hand" (LHC) or "right-hand" (RHC) "twist". The 14C is equipped with a feedpoint mounted Circularity Switcher, keyed by +9 to +15 VDC, that permits instant selection from your shack or other remote point. Only one 50 ohm feedline is needed. Electrically, the 14C has seven elements in the vertical plane and seven in the horizontal. Since each set of elements comes with it's own 4:1 coax balun, the 14C can also be used as two separately fed antennas.

The 'Circular' advantage....

KLM's series of circular polarized antennas were originally introduced to optimize satellite reception where circular wavefronts are generated as signals pass through the ionosphere. They have also proven to be highly useful for terrestrial communications where signals, fixed and mobile, are disturbed by buildings, movement, mountains, and/or the earth's curvature. Under these conditions, circular wavefronts are also developed and, compared with a linear polarized antenna, a user of the 14C will enjoy less flutter fading, less multipath distortion, and possibly better S/N ratios. Benefits on transmit are similar.

Built to last, built to perform....

New design and materials help the 14C maintain good circularity and mechanical stability. The 3/16" rod parasitics are anchored firmly through the center of the boom. The dipole driven elements fold evenly around the boom. Symmetry is near-perfect. All aluminum materials use strong, weather resistant 6061-T6 or 6063-T832 alloys. All hardware is stainless steel except for U-bolts. All elements are insulated from the boom, although the driven elements can be grounded if lightning protection is desired.

Long-life coax baluns eliminate matching hassles....

The KLM 2M-14C comes complete with two 4:1 coax baluns, polarity switcher, and matching harness with SO-239 connector. Baluns and harness are constructed of coax with silver plated conductors and teflon insulation for years of reliable service.

**SPECIFICATIONS: KLM 2M-14C CIRCULAR POLARIZED ANTENNA**

Coverage:	143-150 MHz (no retuning)	Number of Elements:	14; 7H, 7V
Polarization:	Circular	Feed Impedance:	50 ohms, unbal.
Gain:	11 dBdC	Boom Length/Dia.:	12'9"/1½" O.D.
Ellipticity:	3 dB max.	Mounting/Mast:	Center/2" Mast
VSWR:	Better than 1.5:1	Weight:	7½ Lbs.
Beamwidth:	48°	Windload:	1.2 Sq. Ft.
Balun(s):	4:1 coax (2) 2KW PEP	Switcher, Power Rating:	600W PEP
Stacking Distance, H or V:	8-10'		



KLM 2M-14C  
ANTENNA ASSEMBLY

BEFORE YOU BEGIN.....

1. Select an assembly area large enough to comfortably accommodate overall antenna dimensions. A shallow box is handy for holding and sorting the smaller hardware, as is a marking pen for identifying components.
2. Some simple tools are required: A tape measure, screwdriver, and a set of spin-tite, socket or end wrenches. Common nut sizes are:

5/16" ..... 6-32 hdwe  
11/32"..... 8-32 hdwe

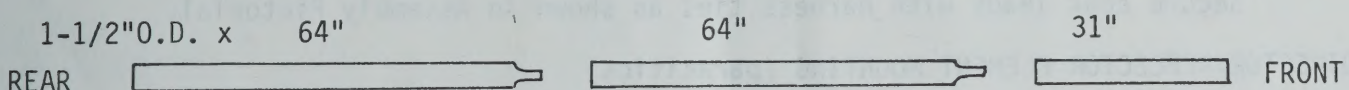
7/16" ..... 1-20 hdwe  
1/2"..... 5/16-18 hdwe

To avoid damage to antenna components, be aware that most hardware need only be moderately hand tightened with screwdriver or spintite to be secure. When using tools with mechanical leverage, such as socket or end wrenches, care must be taken not to over-torque nuts and damage components.

3. Thoroughly unpack shipping box and check components and hardware against the Parts List. If there is a difference, look for a "Factory Update/Change" sheet accompanying the assembly instructions prior to contacting your KLM dealer or the factory.
4. For the best results, use the pictorials to identify the various antenna components before you begin assembly.

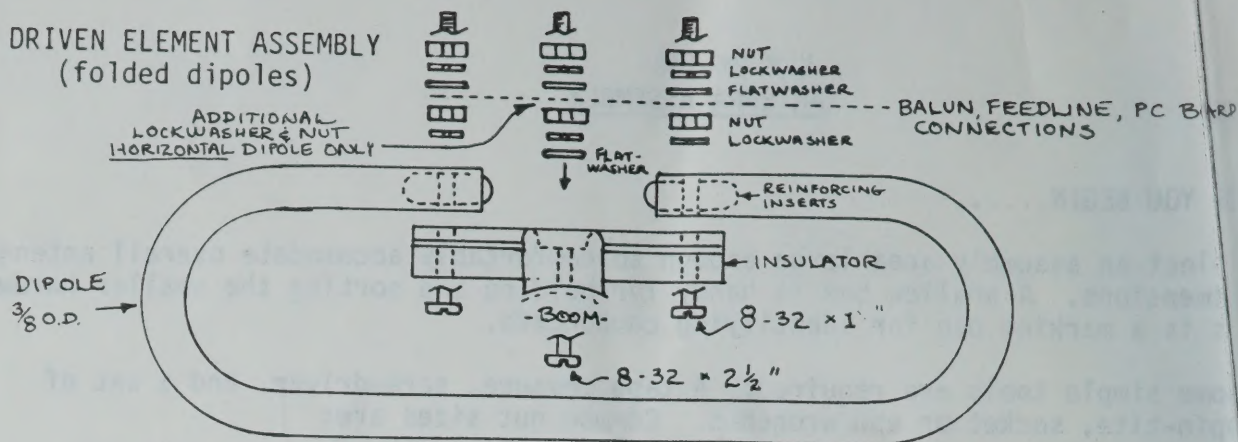
II. BOOM ASSEMBLY

1. The end of each boom section to be assembled is marked with a letter in felt-pen. Assemble boom sections matching like letters ("A" to "A", etc) and aligning screw holes. Each joint requires two sets of 8-32 x 1-3/4" screws, lockwashers and nuts. Handtighten nuts securely. Section placement and length will follow the sketch below:



2. Mount 1" steel clip to right side of boom (when viewed from rear) using the hole 25-1/2" from rear. Secure with 6-32 x 1-3/4" hdwe.

### III. DRIVEN ELEMENT ASSEMBLY (folded dipoles)



1. Select one of the folded dipoles and insert the reinforcing inserts into the tubing ends, aligning the holes.
2. Mount the dipole element to the insulator using the 8-32 x 1" screws, nuts, and lockwashers. See the sketch above for the correct hardware arrangement. Repeat steps 1 and 2 for other dipole assembly

#### REFER TO ASSEMBLY PICTORIAL

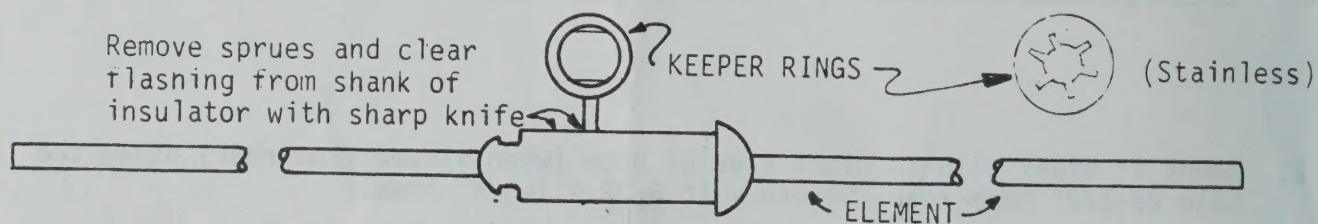
3. Mount the vertical dipole first, element to the front, insulator mounting block to the rear. Orient insulator on same side as 1" clip. Insert 8-32 x 2 1/2" mounting screw from the opposite side of the boom. Place a #8 flatwasher, lockwasher and nut on the screw and handtighten down into insulator cavity.

Mount the horizontal dipole in the same way, with the insulator oriented on the underside of boom. Add an additional lockwasher and nut to the mounting screw to provide an even platform for mounting the PC board.

4. Place the PC board onto the horizontal dipole studs first, then add the coax balun leads (lugs on feedpoints, strap on mounting stud). Secure with 3 sets of 8-32 flatwashers, lockwashers and nuts.
5. Place the SO-239 case into the clip, connector facing rear. Place the other coax balun on the vertical dipole studs, then add the coax lead from the SO-239 case. Place braid strap on the mounting stud. For unkeyed RHC (right-hand circularity) connect the center lead to the LOWER feedpoint stud. For unkeyed LHC (left-hand) connect the center lead to the UPPER feedpoint stud.

Secure coax leads with harness ties as shown in Assembly Pictorial.

### IV. DIRECTOR/REFLECTOR ELEMENT MOUNTING (parasitics)



1. Two types of keeper rings are supplied. For light duty applications where disassembly is likely or desired, use the plastic keepers attached to the insulator. For permanent and inaccessible installations, or where strong weather or vibration is anticipated, use of the stainless steel keepers is recommended.
2. Measure and sort the elements by length. Use the Dimension Sheet to select each element and mount it in the correct position. For example, the two reflector elements (40-5/8" long) are mounted at 1" (H) and 21-1/4" (V) from the rear of the boom.
3. To secure the elements, mount the keepers. Push on plastic keepers and rotate to match flat sides. Stainless keepers are pushed on until flush with boom. (cut to remove).

# DIMENSION SHEET

KLM 2M-14C

ELEMENT SPACING - FEET/INCHES FROM

BOOM REAR: (H)

(V)

FRONT

ELEMENT LENGTHS IN INCHES:

(V)

(H)

12' 8-1/4" ⊙

35-3/8"

11'

10' 10-1/8" ⊙

35-3/8"

35-3/8"

9'-1-7/8"

8' 4-5/8" ⊙

35-3/8"

35-3/8"

6' 8-3/8"

6' 3-5/8" ⊙

35-5/8"

35-3/8"

4' 7-3/8"

4' 4-3/8" ⊙

35-5/8"

35-5/8"

2' 8-1/8"

3' 3-1/4" ⊙

DIPOLE (feedpoints)

35-5/8"

1' 7"

1' 9-1/4" ⊙

40-5/8"

DIPOLE (feedpoints)



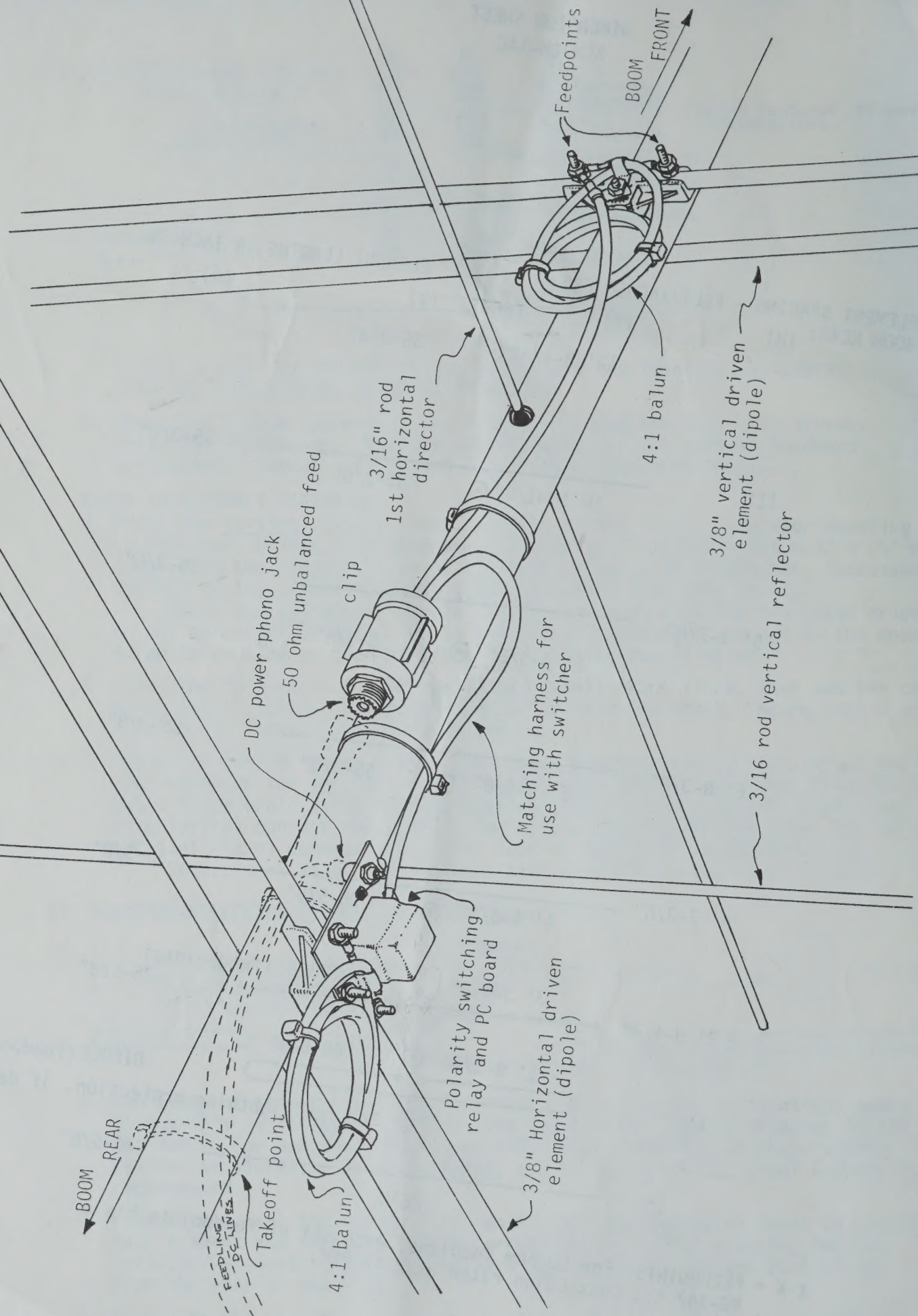
Gnd for lightning protection, if desired

1"

40-5/8"

REAR

X X = FEEDPOINTS. For 50 ohm feedline, each set of feedpoints has a RG-142 4:1 Coax Balun rated at 2 KW PEP.



# PARTS LIST

KLM PART NO.	QTY	SIZE	PART
BAG #1			
2410-0100.....	4.....	1-1/2"	U-Bolts & Cradles, H.D.
2410-0110.....	2.....	2"	U-Bolts & Cradles
Bag #2			
2010-0270.....	1.....	6-32 x 1-3/4"	Screws
2210-0110.....	1.....	6-32	Nut
2610-0060.....	1.....	#6	Lockwasher
2010-0360.....	4.....	8-32 x 1"	Screws
2010-0390.....	4.....	8-32 x 1-3/4"	Screws
2010-0420.....	2.....	3-32 x 2-1/2"	Screws
2210-0120.....	18.....	8-32	Nuts
2610-0220.....	8.....	#8	Flatwashers
2610-0065.....	18.....	#8	Lockwashers
2210-0190.....	12.....	5/16-18	Nuts
2610-0090.....	12.....	5/16	Lockwashers
	8.....		Harness Ties
1410-0136.....	2.....	3/8 x 1-1/2	Type II Insulator
2610-0285.....	14.....	5/16	Stainless Pash-Nuts
1410-0175.....	4.....		Peanuts
1410-1020.....	2.....	1-1/2"	Boom Plugs
Bag #3			
-----	2.....	R.G. - 142 4:1	
		Std. 144-148	Coan Balun
-----	1.....		Assembly Manual

## IN SHIPPING BOX

2	1-1/2" O.D. x 64"	Swedged
1	1-1/2" O.D. x 31"	Straight
2	3/8" O.D.	Dipole Element
2	3/15" O.D. x 40 5/8"	Molded Element
4	3/16" O.D. x 35-5/8"	Molded Element
6	3/16" O.D. x 35-3/8"	Molded Element
1	4" x 8" x 1/8"	Boom to Mast Plate
1		Phasing Coupling Harness

